

Turning to the substantive rejections, independent Claims 1 and 10 (along with a number of dependent claims) were rejected in paragraph 5 of the Office Action under 35 U.S.C. 103(a) as unpatentable over U.S. Patent No. 5,461,639 to Wheatley, III in view of U.S. Patent No. 5,751,763 to Bruckert.

Independent Claim 1 has been amended above to include the recitation "a puncturer for puncturing said encoded data symbols generated from said puncturer as a function of a number of symbols of the side information, the positions of the punctured encoded data symbols chosen to lessen a channel degradation". Support for this amendment is found throughout the specification, for example, at page 9, lines 15-17.

It is submitted that neither Wheatley nor Bruckert discloses at least this aspect recited in Claim 1 as amended. Thus, without conceding that such a combination is proper, the combination of Wheatley and Bruckert fails to present a prima facie case of obviousness with respect to independent Claim 1 as amended. Independent Claim 10 has also been amended to include analogous recitation and is distinguished from Wheatley and Bruckert in like manner. Thus, reconsideration and allowance of independent Claims 1 and 10 is respectfully requested.

Dependent Claims 3, 6-9 and 11-17 were rejected in paragraphs 5 and 6 of the Office Action based on Wheatley and Bruckert, or based on Wheatley and Bruckert in combination with an additional patent. Without conceding the patentability per se of dependent Claims 3, 6-9 and 11-17, it is submitted that they are allowable by virtue of their dependencies on their respective

independent claim, namely Claim 1 or Claim 10. Thus, allowance of Claims 3, 6-9 and 11-17 is also respectfully requested.

Independent Claims 18, 24 and 30 were rejected in paragraph 7 of the Office Action (along with a number of dependent claims) under 35 U.S.C. 103(a) as unpatentable over U.S. Patent No. 6,366,778 to Bender et al. in view of Bruckert. It is respectfully submitted that the Examiner has not met his burden of showing that the Bender patent is proper prior art with respect to the current application under 102(e) /103. Bender does not appear to be entitled to a prior filing date for 102(e) because the claim to priority is defective. The provisional application pre-dates the filing date of the Bender patent by more than one year, and the intervening application referred to in col. 1 of Bender is for an undefined "priority" and is a U.S. international patent application. (Applicant has checked the Patent Office website and it appears to include the same statements as in the printed copy of Bender in this regard.) Should the Examiner clarify this issue, Applicant reserves the right to submit a translation of its Korean priority application to pre-date the filing date of Bender's international application.

In addition, independent Claims 18, 24 and 30 have been amended to include analogous recitation to independent Claims 1 and 10 above. Thus, even if Bender were considered prior art, it is submitted that neither Bender nor Bruckert discloses at least this aspect recited in Claims 18, 24 and 30 as amended. Thus, reconsideration and allowance of independent Claims 18, 24 and 30 is respectfully requested.

Dependent Claims 19-23, 25-29, 31-35 were rejected in paragraphs 7-9 of the Office Action based on Bender and Bruckert, or based on Bender and Bruckert in combination with additional patents. Without conceding the patentability per se of dependent Claims 19-23, 25-29, 31-35, it is submitted that they are allowable by virtue of their dependencies on their respective independent claim. Thus, allowance of Claims 19-23, 25-29, 31-35 is also respectfully requested.


New dependent Claims 36-41 find support in Figs. 5A-5C and the related text in the specification. It is submitted that new dependent Claims 36-41 are allowable at least by virtue of their dependencies on their respective independent claim

In view of the foregoing amendments and remarks, it is respectfully submitted that all of the claims now pending in the application, namely Claims 1, 3 and 6-41 are in condition for allowance. Early and favorable consideration and allowance of Claims 1, 3 and 6-31 is respectfully requested. Should the

Examiner believe that a telephone or personal interview may facilitate resolution of any remaining matters, the Examiner is respectfully requested to phone applicants' attorney at the number indicated below.

Respectfully submitted,

DILWORTH & BARRESE

By: 
Paul J. Farrell
Registration No. 33,494

DILWORTH & BARRESE
333 Earle Ovington Boulevard
Uniondale, New York 11553
(516) 228-8484
(516) 228-8516 (FAX)

Requirements as per 37 C.F.R. 1.121(c)(1)(ii)

Rewritten claims marked up to show all the changes relative to the previous version of the claims:

1. (Amended) An apparatus for inserting side information in a communication system, comprising:

a channel encoder for encoding input data in a frame unit to generate encoded data symbols;

a puncturer for puncturing said encoded data symbols generated from said puncturer as a function of a number of symbols of the side information, the positions of the punctured encoded data symbols chosen to lessen a channel degradation;

a side information generator for generating the [a] number of said side information;

a selector for generating a select control signal designating positions into which said side information are inserted;

a side information inserter for inserting said side information between said encoded punctured data symbols in response to said select control signal; and

a spreader for spreading the output of said side information inserter.

3. (Amended) The apparatus as claimed in claim 1 [2], further including an interleaver for interleaving said encoded data symbols to supply the interleaved data symbols to said side information inserter.

10. (Amended) A method for inserting side information in a communication system, comprising the steps of:

encoding input data in a frame unit to generate encoded data symbols;

puncturing said encoded data symbols, the positions of the punctured encoded data symbols chosen to lessen a channel degradation;

inserting said side information between the punctured data symbols; and

spreading the symbols with said side information.

18. (Amended) A channel transmitter of a communication system, comprising:

a cyclic redundancy check (CRC) generator for adding a CRC bit to input data in a frame unit;

a tail bit generator for adding a tail bit to the output of said CRC generator;

an encoder for encoding the output of said tail bit generator at a preset coding rate;

a puncturer for puncturing symbols of a prescribed number of the output symbols of said encoder, the positions of the punctured output symbols of said encoder chosen to lessen a channel degradation;

an interleaver for interleaving the output of said puncturer;

a selector for generating a select control signal designating a position into which side information is inserted;

a side information inserter for inserting said side information between the output symbols of said interleaver in response to said select control signal; and

an orthogonal modulator for orthogonally modulating the output of said side information inserter.

24. A transceiver of a mobile communication system, comprising:
- a channel encoder for encoding input data to generate encoded data symbols sequence;
 - a puncturer for puncturing a number of said encoded data symbol sequence in consideration of the number of symbols of side information to be inserted, the positions of the punctured encoded data symbols chosen to lessen a channel degradation;
 - an interleaver for interleaving the punctured data symbol sequence;
 - a side information generator for generating said side information;
 - a selector for generating a select control signal designating a position into which said side information is inserted;
 - a side information inserter for inserting said side information between the interleaved data symbol sequence in response to said select control signal;
 - a transmitter for spreading the data symbol sequence having said side information to transmit the spread signal; and
 - a receiver for receiving said spread signal from said transmitter, wherein said receiver includes;
 - a finger for despreading said spread signal to generate a receiving signal sequence;

an inserting position selector for generating a control signal designating a position into which said side information is inserted; and

a demultiplexer for extracting said side information contained in said receiving signal sequence in response to said control signal generated from said inserting position selector.

30. (Amended) A method for transmitting and receiving data in a mobile communication system, comprising the steps of:
encoding input data to generate encoded data symbol sequence;
puncturing a number of said encoded data symbol sequence in consideration of the number of symbols of side information to be inserted, the positions of the punctured encoded data symbols chosen to lessen a channel degradation;

interleaving the punctured data symbol sequence;
generating said side information;
generating a select control signal designating a position into which said side information is inserted;

inserting said side information between the interleaved data symbol sequence in response to said select control signal;

spreading the data symbol [sequence] sequence having said side information to transmit the spread signal;

despreading said spread signal to generate a receiving signal sequence;
despreading a position into which said side information is inserted; and

extracting said side information contained in said receiving signal sequence in response to the designated position.